Supplemental Table 1: Patients´ characteristics (n=222).

Parameter	Early SPECT (≤4h p.i.; n = 44)	Late SPECT (≥15h p.i.; n = 178)	p-value
Year of initial RP, Median (IQR)	2010 (2005, 2013)	2014 (2010, 2016)	**<0.001**
PSA at RP, ng/ml, Median (IQR)	10 (6, 16)	9 (6, 15)	0.8
pT stage at RP, n (%)			0.9
pT2	13 (30)	61 (34)	
pT3a	16 (36)	60 (34)	
pT3b	14 (32)	55 (31)	
NA	1 (2.3)	2 (1.1)	
Gleason grade group, n (%)			0.08
I	6 (14)	12 (6.7)	
II	8 (18)	51 (29)	
III	11 (25)	65 (37)	
IV	5 (11)	12 (6.7)	
V	11 (25)	35 (20)	
NA	3 (6.8)	3 (1.7)	
pN stage at RP, n (%)			0.9
pN0	34 (77)	131 (74)	
pN1	8 (18)	36 (20)	
pNX/NA	2 (4.5)	11 (6.2)	
Lymph node yield at RP, Median (IQR)	13 (8, 20)	13 (8, 20)	0.6
No. of positive lymph nodes at RP, n (%)			0.6

0	32 (73)	115 (65)	
1	3 (6.8)	19 (11)	
2	3 (6.8)	9 (5.1)	
>=3	2 (4.5)	5 (2.8)	
Unknown	4 (9.1)	30 (17)	
Surgical margin status, n (%)			0.05
R0	29 (66)	130 (73)	
R1	9 (20)	41 (23)	
RX/NA	6 (14)	7 (3.9)	
RT post RP, n (%)			0.1
No RT	15 (34)	59 (33)	
RT post RP	28 (64)	119 (67)	
NA	1 (2.3)	0 (0)	
Time RP to SPECT, months, Median (IQR)	70 (22, 128)	46 (22, 88)	0.2
Age at PSMA-RGS, years, Median (IQR)	72 (65, 75)	66 (61, 70)	**<0.001**
PSA prior to SPECT, ng/ml, Median (IQR)	1.4 (0.7, 3.0)	1.0 (0.5, 2.0)	0.09

Abbreviations: PSA = prostate specific antigen, NA = not assigned, RP = radical prostatectomy, RT = radiotherapy, IQR = interquartile range.

Supplemental Table 2: Imaging and technical parameters of used SPECT/CT scanners.

		Mediso AnyScan® Trio	Siemens Symbia Intevo Bold™	Siemens Symbia T9™
Planar	Scan speed	120 mm/min	120 mm/min	
SPECT	Number of projections	96	128	120
	Time per projection	40	20	10
	Collimator	LEHRHS	LEHR	LHER
	Reconstruction	Tera-Tomo Q 3D	Flash 3D	Flash 3D
	Reconstruction parameters	105 iterations, 5 subsets	12 (sub)iterations, 2 subsets	12 (sub)iterations, 2 subsets
		CT-based attenuation correction	CT-based attenuation correction	CT-based attenuation correction
		Monte Carlo based scatter correction	Energy window based scatter correction	Energy window based scatter correction
	Matrix	128 x 128	128 x 128	128 x 128
	Voxel size	4.26 mm	4.80 mm	4.80 mm
CT	Tube voltage	100 - 130 kV	100 - 130 kV	100 – 130 kV
	Tube current	Automatic	Automatic	Automatic
	Slice thickness	0.6 mm	0.6 mm	0.8
	Slice thickness reconstructed	3 mm	3 mm	3 mm

Berliner et al.

Supplemental Table 3: Visual four point scale used to rate [^{99m}Tc]Tc-PSMA-I&S SPECT/CT detected lesions divided into SPECT-negative (score 1 and 2) and SPECT positive (score 3 and 4). Non-demarcable lesions were given a score of 1 and lesions that were only detectable with knowledge of PET were given a score of 2. Score 3 was assigned to lesions with moderate uptake and score 4 to lesions with intense uptake. In qualitative assessment, lesions with score 3 and 4 were considered positive

Score	Description	Evaluation
1	not visible	negative
2	slight tracer uptake (only recognizable in knowledge of PET)	negative
3	moderate tracer uptake	positive
4	intensive tracer uptake	positive